

SECTIONAL NAMES IN THE GENUS *HIERACIUM* (*ASTERACEAE*) SENSU STRICTO

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The literature from 1794 to the present on the infrageneric classification of *Hieracium* L. sensu stricto is analysed. The 38 informal groups recognized in *Flora Europaea* by Sell & West (1976) are considered as sections, and the correct name for each at that rank is listed, with basionym and synonymy. The 38 names include three new combinations and four new sections.

Keywords. Agamospecies, apomixis, infrageneric classification.

THE TREATMENT OF APOMICTIC TAXA WITH SPECIAL REFERENCE TO *HIERACIUM*

The taxonomic treatment of apomictic taxa in the past has been varied. For example, in *Rubus* Gustafsson (1943) devised a system of ‘circle-species’, around which more narrowly defined species were grouped; in *Ranunculus auricomus* L. agg. most of the taxa were recognized as subspecies (Marklund, 1961 and later); and in *Hieracium* Zahn (1921–23 and earlier) utilized a system of ‘species principales collectivae’ and ‘species intermediae collectivae’, under which the more narrowly defined taxa were recognized as subspecies. Other genera (e.g. *Cotoneaster*, *Taraxacum*, *Sorbus*, *Alchemilla*, *Limonium*) have mostly not been treated as special cases, and the taxa recognizable in the field have been given specific rank as soon as they were distinguished and their apomictic background established.

More recently a consensus has developed whereby the taxa of *Ranunculus* (Ericsson, 1992), *Rubus* (e.g. Edees & Newton, 1988; Weber, 1995) and *Hieracium* (e.g. Sell & West, 1976) have also been treated in a more orthodox fashion, with the species being the main rank used. Such species are clearly genetically narrower than species in sexually reproducing genera (or other parts of the same genus), and are frequently referred to as ‘microspecies’ or ‘agamospecies’, but they share with sexual species the facts that they represent the entities that are recognizable in the field (often with characteristic geographical and ecological distributions) and that their nomenclature follows the *International Codes*.

The concept of aggregate species (such as ‘circle-species’, ‘collective species’ or ‘species groups’) might still be informative, and indeed ‘species groups’ were used to accommodate one to many binomial agamospecies in *Hieracium* by Sell & West (1976), but their use does carry two disadvantages. Firstly, it creates, so to speak, a concept of species at two distinct levels, and secondly it requires many subjective

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decisions before the agamospecies can all be correctly assigned to their appropriate species group.

Above the level of species or species group, the ranks of subgenus, section, series, etc. have frequently been employed in apomictic genera. In the genus *Hieracium*, such a treatment dates back approaching 200 years (Dumortier, 1827). Zahn, whose work c.1900–1930 has been the dominant influence on twentieth century *Hieracium* studies, from the start utilized sections ('Rotte') into which his 'species collectivae' were grouped. The most important twentieth century British workers, e.g. F.N. Williams, H.W. Pugsley, C. West and P.D. Sell, in most cases also used the rank of section as the main one between genus and species. Almost uniquely, Sell & West (1976), in their treatment for *Flora Europaea*, did not use the rank of section, but instead recognized 'informal subdivisions' within *Hieracium* subgenus *Hieracium*. These were at two levels: a lower one, of which there were 38, designated i–xxxviii, and a higher one, of which there were five (A, containing i–ix, B, containing x–xv; C, containing xvi–xxiii; D, containing xxiv–xxvi; E, containing xxvii–xxxviii).

Despite the fact that Sell & West (1976) stated that 'no infrageneric taxa are recognized below the rank of subgenus', a good correlation between their 38 lower 'informal subdivisions' and the sections of Zahn (of which there were 25 in the treatment for *Das Pflanzenreich* (Zahn, 1921–23)) is clear. One year earlier Sell & West (1975), in their account for the *Flora of Turkey*, used the rank of series rather than section, recognizing 14 taxa at that level. These series are clearly equivalent to the informal groups of Sell & West (1976) and to the sections of Zahn (1921–23). In fact P.D. Sell (oral comm., 1995) has informed me that it was his original intention to use the rank series as the main infrageneric category, but that for practical reasons his opinion had changed and he later favoured sections. In *Flora Europaea* the use of either was editorially prevented.

The circumscription of *Hieracium* is still a contentious issue. In the most authoritative world-wide monograph, Zahn (1921–23) recognized four subgenera:

SUBGEN. 1 – *Euhieracium*. This contains *H. murorum* L., the type of the genus, and is by far the largest subgenus, with 25 sections in Zahn, and, as stated above, 38 unnamed European ones in Sell & West (1976).

SUBGEN. 2 – *Stenotheca* (Monnier) Fr., *Epic. Gen. Hierac.* p. 140 (1862). This was based on the genus *Stenotheca* Monnier, *Ess. Monog. Hieracium*, p. 71 (1829), which was erected for three North American species. As a subgenus in Zahn it contains 127 species placed in 13 sections. 126 of the species are extra-European, from South Africa, North, Central and South America, and Central and East Asia. The other species, *H. staticifolium* All., is central European, but it was transferred to the genus *Tolpis* by Schultz-Bipontinus, *Bonplandia* 9: 173 (1861), and has been retained there by most recent European taxonomists. The correct generic status of the rest of *Stenotheca* remains to be settled, but is probably outside *Hieracium*.

SUBGEN. 3 – *Mandonia* Arv.-Touv., *Spicil. Rar. Hierac.*, p. 21 (1881). This is the same as the genus *Mandonia* Sch. Bip., *Linnaea* 33: 757 (1865), which was erected

for a single South American species but which is an illegitimate later homonym of *Mandonia* Wedd., *Bull. Soc. Bot. France* 11: 50 (1864). Subgenus *Mandonia* in Zahn contains three South American species in a single section. The generic status is uncertain, but is probably outside *Hieracium*.

SUBGEN. 4 – *Pilosella* (Hill) Gray, *Nat. Arr. Br. Pl.* 2: 421 (1821), based on the genus *Pilosella* Hill, *Brit. Herb.*, p. 441 (1756). Zahn recognized 181 species in seven sections, but the species were divided into numerous subspecies (624 in *H. pilosella* alone!). Although normally included as a subgenus of *Hieracium*, *Pilosella* has been recognized as a genus by many authors over the past two centuries, notably by Sell & West (1967) in recent times. There are clear differences between it and *Hieracium* sensu stricto, including contrasting features of cytology, sexual reproduction and apomixis, but decisions as to generic status should be taken together with consideration of several related genera such as *Andryala*, *Crepis* and others.

This paper is concerned only with *Hieracium* subg. *Hieracium* ('*Euhieracium*', '*Archieracium*') as defined by Zahn (1921–23). The data were gathered because of the need to use sectional names for *Hieracium* in various floristic works, and after it was realized that many of the names in current use in the British literature were uncritically copied from earlier publications using erroneous names. The use of sectional names in *Hieracium* is here advocated because it parallels the most frequent modern treatments of other apomictic genera, notably *Taraxacum* F.H. Wigg.

CHRONOLOGICAL CLASSIFICATION OF *HIERACIUM* SUBGENUS *HIERACIUM*

The following is a chronological summary of the main publications that have provided classifications of *Hieracium* subg. *Hieracium*. Many others were consulted, but have been omitted here as they were not considered to represent significant contributions at the infrageneric level. I have typified those names that are relevant to a sectional classification, and quoted the group of Sell & West (1976) to which each belongs.

1. C. Moench, *Methodus*, pp. 546–547 (1794)

Two genera are recognized:

Hieracium L., including *H. pilosella* L. (the type of the genus *Pilosella* Hill) and *H. murorum* L. (group i; the type of the genus *Hieracium*).

Hieracioides Moench (including the leaf-stemmed *Hieracia* such as *H. sabaudum* L. (group xxxv) and *H. umbellatum* L. (group xxxvi)). *Hieracioides* Moench is, however, an illegitimate later homonym of *Hieracioides* Fabr. I select as the type of *Hieracioides* Moench *H. umbellatum* L. (group xxxvi), a widespread and well-known species that fits the generic description.

2. B.C.J. Dumortier, *Florula Belgica*, p. 62 (1827)

Moench's two genera are recognized as sections of *Hieracium*, with a similar selection of species in each. Since, however, *Hieracioides* Moench is illegitimate, the correct

citation is sect. *Hieracioides* Dumort. Three of the four species placed in it are now included in *H. umbellatum* L., which I select as the type. Dumortier used the invalid name sect. *Hieraciotypus* for what he considered to be the type section.

3. I.F. Tausch, Bemerkungen über *Hieracium* und einige Verwandte Gattungen, in *Flora* 11 (Ergänzungsblätter): 49–81 (1828)

Hieracium is divided into two rankless groups: *Pilosella* and *Aurella* Tausch, the latter containing *H. porrifolium* L. (group xxiv), which is here selected as the type to coincide with the more restricted sense of *Aurella* adopted by Koch (1837).

4. J.F.A.G.P. Gaudin, *Flora Helvetica* 5: 63–130 (Jan.–Sep. 1829)

The genus is subdivided into a hierarchy of rankless groups, two levels of which are given names. There are two taxa at the higher level, *Hieracia* and *Pseudocrepides* Gaudin, the former being subdivided into seven named taxa at the lower level. One of these is *Pulmonariae*, which contains, *inter alia*, *H. murorum*, *H. sabaudum* and *H. umbellatum*, the first of which is selected here as the type in order to coincide with Monnier's *Pulmonariae* (1829). *Pseudocrepides* contains species today placed under *Crepis*.

5. A. Monnier, *Essai Monographique sur les Hieracium* (Oct. 1829)

Hieracium is divided into six sections ('sectio'):

SECT. *Drepanoidae* Monnier. Of the five species, one is now included in the genus *Tolpis*; the other four fall into Sell & West's group xxiv and, of these, *H. porrifolium* L. is here selected as the type, since it coincides most closely with the sectional description (involucre without simple eglandular hairs).

SECT. *Pilosellae* Monnier. *H. pilosella* must be the type.

SECT. *Pulmonariae* Monnier. No reference is made to Gaudin's use of this name, but it has the same circumscription. *H. murorum* (group i) is here selected as the type as it and the section are described as glandular.

SECT. *Cerinthoidae* Monnier. *H. cerinthoides* L. (group vi) must be the type.

SECT. *Andryaloidae* Monnier. *H. andryaloides* Vill. (group xii) must be the type.

SECT. *Crepoidae* Monnier. Of the two species included, one is nowadays placed in *Andryala* and the other in *Crepis*.

6. W.D.J. Koch, *Synopsis der Deutschen und Schweizer Flora*, pp. 443–462 (Oct. 1837)

Six sections are recognized:

SECT. *Piloselloidea* W.D.J. Koch. *H. piloselloides* Vill. must be the type, but since the section also contains *H. pilosella* the correct sectional name must be *Pilosellae* Monnier. It belongs to the genus *Pilosella*.

SECT. *Aurella* (Tausch) W.D.J. Koch, based on taxon *Aurella* Tausch. Koch's concept of this section was much narrower than Tausch's, and the type of the latter has been selected to fall in with Koch's restricted use of the name. However, Koch's sect. *Aurella* was superfluous, as he included in it the mandatory type of sect. *Cerinthoidea* (*H. cerinthoides*).

SECT. *Pulmonarioidea* W.D.J. Koch. Type must be *H. pulmonarioides* J. Presl., non Vill., which is today placed under *H. sudeticum* Sternb. (group xviii).

SECT. *Andryaloidea* Monnier, as under Monnier (1829).

SECT. *Glutinosae* W.D.J. Koch. No '*H. glutinosum*' is included, and *H. jacquini* Vill. (now considered a synonym of *H. humile* Jacq., group xix) is here chosen as the type since it agrees with the sectional description.

SECT. *Aphyllopoda* Froel. ex. W.D.J. Koch. Koch's reference to Froelich presumably applies to the latter's contribution to DeCandolle's *Prodromus* (see below), but which was published six months later. This section corresponds almost exactly with Moench's and Dumortier's *Hieracioides*, and is here similarly typified on *H. umbellatum*.

7. J.A. Froelich, *Hieracium*, in A.P. DeCandolle, *Prodromus Systematis Naturalis Regni Vegetabilis* 7: 198–240 (Apr. 1838)

A hierarchical classification with four levels is utilized, the highest level being termed section, of which there are two taxa: sect. *Copholepida* Froel. and sect. *Oxylepida* Froel. Both are illegitimate because they contain the mandatory types of earlier sections, e.g. *Pilosellae* and *Cerinthoidae* respectively, and I here typify them by *H. pilosella* (genus *Pilosella*) and *H. cerinthoides* (group vi) respectively. Sect. *Oxylepida* is actually termed 'Series II', but from the layout this is obviously a typographic error.

Sect. *Copholepida* is divided into two subsections: *Dasycephala* Froel. and *Leiocephala* Froel., which I here typify by *H. pilosella* (genus *Pilosella*) and *H. umbellatum* (group xxxvi) respectively.

The lowest two levels are not given ranks.

8. W.D.J. Koch, *Synopsis der Deutschen und Schweizer Flora*, ed. 2, pp. 508–531 (1844)

In this upgrading of the 1837 account, nine sections are recognized by splitting three of the original six each into two; *Piloselloidea*, *Pulmonarioidea* and *Andryaloidea* remain largely as before.

Sect. *Aurella* is split into sect. *Aurella* and sect. *Cerinthoidae* Monnier; the former as noted above is illegitimate.

Sect. *Glutinosae* was not used by Koch in 1844, but was divided into two new sections:

SECT. *Pseudocerinthoidea* W.D.J. Koch, which was based on *H. pseudocerinthae* (Gaudin) W.D.J. Koch (group xxi). Sect. *Pseudocerinthoidea* is, however, illegitimate, as it contains *H. pulmonarioides* J. Presl., the type of sect. *Pulmonarioidea* (group xviii), and it must therefore be typified by the type of the latter section (Article 7.5). (It also contained *H. pulmonarioides* Vill., whereas Koch's sect. *Pulmonarioidea* in 1844 contained no *H. pulmonarioides*!).

SECT. *Intybacea* W.D.J. Koch, which must be based on *H. intybaceum* All. (group xxiii).

Sect. *Aphyllopoda* was not used by Koch in 1844, but its species were placed in two new sections:

SECT. *Prenanthoidea* W.D.J. Koch, which must be typified by *H. prenanthoides* Vill. (group xxviii).

SECT. *Accipitrina* W.D.J. Koch. The latter contains the bulk of sect. *Aphyllopoda*, including its type *H. umbellatum*, and it is here typified on that species.

9. E.M. Fries, *Symbolae ad historiam Hieracium*, in *Nova Acta Regiae Societatis Scientiarum Upsaliensis*, ser. 2, 13: 383–416 (1847)

Hieracium is divided into five series, three of which apply to *Hieracium* sensu stricto:

SER. *Aurella* (Tausch) Fr.

SER. *Pulmonarea* (Monnier) Fr.

SER. *Accipitrina* (W.D.J. Koch) Fr.

10. J.C.M. Grenier, *Hieracium*, in J.C.M. Grenier & D.A. Godron, *Flore de France* 2: 343–388 (1850)

Four sections are recognized, all taken from previous works, and three of them are subdivided into several lower taxa at the same but unspecified rank.

Sect. *Pulmonarea* is divided into three taxa: *Andryaloidea*, *Pulmonarioidea* and the only new taxon in the work, *Rupicola* Gren., based on *H. rupicola* Jord. (group xxi).

11. C.H. Godet, *Hieracium*, in *Flore du Jura*, pp. 415–431 (pre-May 1852)

Three sections are recognized, of which one is new:

SECT. *Phyllopoda* Godet.

This name was obviously chosen to contrast with sect. *Aphyllopoda*. These two sections are divided into five and two lower taxa of unspecified rank respectively, but none of the seven names is new. Sect. *Phyllopoda* is here typified on *H. glaucum* All. (group xxiv), one of the species included in taxon *Aurella*, the first of its five lower taxa.

12. A. Grisebach, *Commentatio de Distributione Hieracii Generis per Europam Geographica* (?late 1852)

Two sections are recognized, *Pilosella* and *Pulmonarea*, the latter covering the whole of *Hieracium* subg. *Hieracium* and being divided into eight taxa at a lower unspecified level. These are roughly equivalent to the sections of Monnier and Koch, but six of them are new names:

Amplexicaulia Griseb., which must be typified by *H. amplexicaule* L. (group xx).

Alpina Griseb., which must be typified by *H. alpinum* L. (group xvi).

Vulgata Griseb., which must be typified by *H. vulgatum* Fr. (group ii).

Rupestria Griseb., which must be typified by *H. rupestre* All. (group xi).

Villosa Griseb., which must be typified by *H. villosum* Jacq. (group vii).

Glauca Griseb., which must be typified by *H. glaucum* All. (group xxiv).

13. J. Backhouse, *A Monograph of the British Hieracia* (1856)

The genus is divided into 'natural groups' at two unspecified levels; these were wrongly referred to as sections and subsections by Pugsley (1948). Two of the three major groups refer to *Hieracium* sensu stricto.

Pulmonarea is divided into four lower taxa, three of which are new:
Nigrescentes Backh., based on *H. nigrescens* Willd. (group xvi).

Pallida Backh., based on *H. pallidum* Biv. (group iii).

Pseudoaccipitrinae Backh., based on *H. gothicum* Fr. (group xxxvii).

Accipitrina is divided into two lower taxa, of which one is new:

Pseudopulmonarea Backh., based on *H. tridentatum* Fr. (group xxxvii).

14. E.M. Fries, *Epicrisis Generis Hieraciorum*, in *Uppsala Univ. Årsskr.* 1862: 1–158 (1862)

Fries' work contains no new sectional names, but nine new names are coined at an unspecified lower rank, some of which are today the basionyms of important sectional names.

The genus is divided into three subgenera (*Pilosella*, *Archieracium*, *Stenotheca*). The second of these is split into three series each of which contains several lower taxa of unspecified rank:

SER. *Aurella* (Tausch.) Fr. contains six subgroups, one of which is a new name:

Lanifera Fr., based on *H. laniferum* Cav. (group v).

SER. *Pulmonarea* (Monnier) Fr. contains five subgroups, three of which are new names:

Oreadea Fr., based on *H. oreades* Fr. (group iv).

Alpestria Fr. based mainly on *H. dovrense* Fr. (group xxx), here selected as the type.

Italica Fr., based on *H. italicum* Fr. (group xxxiii).

SER. *Accipitrina* (W.D.J. Koch) Fr. contains six subgroups, five of which are new names:

Tridentata Fr., based on *H. tridentatum* Fr. (group xxxvii).

Foliosa Fr., based on *H. foliosum* Waldst. & Kit. (group xxxi).

Sabauda Fr., based on *H. sabaudum* L. (group xxxv).

Umbellata Fr., based on *H. umbellatum* L. (group xxxvi).

Pseudostenotheca Fr., based on four species of which *H. sparsiflorum* Friv.

ex Fr., nom. illegit. (*H. sparsum* Friv.) (group xxv) is here selected as the type, as it agrees well with the description of *Pseudostenotheca*.

15. G.H.A. Scheele, *Revisio Hieraciorum Hispanicorum et Pyrenaicorum*, in *Linnaea* 31: 636–658 (1863 [1862]) & 32: 643–688 (1864 [1863])

The classification sets out two subgenera, *Pilosella* and *Euhieracium*, and in the latter two 'Tribus', *Trichoclinica* and *Gymnoclinica*. The *Trichoclinica* are divided into two sections, *Amplexicaulia* (Griseb.) Scheele, and *Cerinthoidea* Monnier ('mihi' sic). The latter is in turn divided into six subsections, all with new names:

SUBSECT. *Bellidifolia* Scheele, based on *H. bellidifolium* Scheele (group v).

SUBSECT. *Cerinthella* Scheele, containing *H. cerinthoides* hence presumably considered the type subsection; *H. cerinthoides* (group vi) is here selected as the type.

SUBSECT. *Olivacea* Scheele, based on *H. olivaceum* Gren. (group vi).

SUBSECT. *Composita* Scheele, based on *H. compositum* Lapeyr. (group xxxiii).

SUBSECT. *Pyrenaica* Scheele, based on *H. pyrenaicum* Jord. (group xxxiii).

SUBSECT. *Hirsuta* Scheele, based on *H. hirsutum* Bernh. ex Froel. (group xxxv).

16. A. Gremlí, *Excursionsflora für die Schweiz*, ed. 1, pp. 220–235 (1867)

A two-tier system of classification is presented, with five taxa at the higher level, each of which contains up to six taxa at the lower level. No indication of ranks is given, and none of the 23 names used is new.

Editions 2 (pp. 261–274, 1874) and 3 (pp. 251–264, 1878) of the same work present modifications of the above, but no ranks are given and no new names introduced.

17. C.H. Godet, *Hieracium*, in *Supplément à la Flore du Jura Suisse et Français*, pp. 119–128 (1869)

In subgenus *Archieracium* three series are recognized, none new at that rank, and under each three to five lower taxa of unspecified rank are delimited. One of those under ser. *Pulmonarea* is the only new name in the work:

Adenophylla, based on *H. humile* Jacq. (group xix).

18. H.M. Willkomm & J.M.C. Lange, *Prodromus Florae Hispanicae* 2: 251–270 (1870)

The classification used is largely that of Scheele (1864), but that apparently unfinished work is completed in that the *Gymnoclinica* are divided into four sections, one of which, sect. *Vulgata* (Griseb.) Willk. & Lange, is new.

19. J.M.C. Arvet-Touvet, *Essai sur les Plantes du Dauphiné. Diagnosis specierum novarum vel dubio praeditarum* (1871)

Hieracium sensu stricto is divided into five sections, of which one is new at that rank:
SECT. *Oreadea* (Fr.) Arv.-Touv.

20. J.M.C. Arvet-Touvet, *Monographie des Pilosella et des Hieracium du Dauphiné* (1873)

Hieracium is divided into three sections, one new, each with subsections:

SECT. *Phyllopoda* Godet, with five subsections, one of which is new and four of which are new combinations:

SUBSECT. *Aurella* (Tausch) Arv.-Touv.

SUBSECT. *Cerinthoidea* (Monnier) Arv.-Touv.

SUBSECT. *Euglandulosa* Arv.-Touv., based on five species of which *H. amplexicaule* L. (group xx) is here selected as type. This taxon is quite different in concept from subsect. *Glandulosa* Pugsley (group i).

SUBSECT. *Andryaloidea* (Monnier) Arv.-Touv.

SUBSECT. *Pulmonarioidea* (W.D.J. Koch) Arv.-Touv.

SECT. *Subaphyllopoda* Arv.-Touv., with two subsections, one new and one a new combination:

SUBSECT. *Alpestria* (Fr.) Arv.-Touv.

SUBSECT. *Cydoniifolia* ('*Cydoniaefolia*') Arv.-Touv., of which *H. cydoniifolium* Vill. (group xxix) must be the type.

Sect. *Subaphyllopoda* is here typified by *H. macilentum* Fr. (group xxx), the only one of the four species in Arvet-Touvet's *Alpestrina* still classified in that taxon.

SECT. *Aphyllopoda* Froel. ex W.D.J. Koch, with two subsections, both new at that rank:

SUBSECT. *Prenanthoidea* (W.D.J. Koch) Arv.-Touv.

SUBSECT. *Accipitrina* (W.D.J. Koch) Arv.-Touv.

21. J.M.C. Arvet-Touvet, *Supplément à la Monographie des Pilosella et des Hieracium du Dauphiné* (1876)

A new classification is provided, without use of the three main sections of the 1873 work, involving elevation of most of the subsections to sections. Of the 12 sections recognized, five are new combinations:

SECT. *Alpestrina* (Fr.) Arv.-Touv.

SECT. *Italica* (Fr.) Arv.-Touv.

SECT. *Tridentata* (Fr.) Arv.-Touv.

SECT. *Sabauda* (Fr.) Arv.-Touv.

SECT. *Foliosa* (Fr.) Arv.-Touv.

22. J.M.C. Arvet-Touvet, *Additions à la Monographie des Pilosella et des Hieracium du Dauphiné* (1879)

In the *Additions* the classification is again revised, the number of sections being reduced to five. Three of these are retained from 1876, the other two are newly utilized and are both subdivided:

SECT. *Pulmonarioidea* W.D.J. Koch, with three subsections:

SUBSECT. *Oreadea* (Fr.) Arv.-Touv.

SUBSECT. *Oleosa* Arv.-Touv., based on three species including '*H. oleosum*', an apparently superfluous new name for *H. oleovirens* Arv.-Touv. (group v).

SUBSECT. *Eupulmonarioidea* Arv.-Touv., the type subsection. This was segregated into two new lower taxa of unspecified rank, both nomina nuda.

SECT. *Accipitrina* W.D.J. Koch, with three subsections:

SUBSECTIONS '*Prenanthoidea et Alpestrina*', both previously used at that rank by Arvet-Touvet (1873).

SUBSECT. *Picroidea* Arv.-Touv., based on *H. lactucifolium* Arv.-Touv. (group xxii).

SUBSECT. *Euaccipitrina* Arv.-Touv., the type subsection. This was segregated into four lower taxa of unspecified rank; three were earlier names previously at specified ranks, one was a new nomen nudum.

23. J.M.C. Arvet-Touvet, *Essai de classification sur les genres Pilosella & Hieracium*, in *Bulletin de la Société Dauphinoise pour l'Échange des Plantes* 1880: 278–292 (1880).

The genus is divided into nine main taxa which can be considered as sections, and each of these is divided into up to six lower unspecified ranks; under lower rank *Pulmonarea* Arvet-Touvet states 'caractères généraux pour la section (i.e. main taxon *Pulmonarioidea*)'. Of the nine sections, one is new:

SECT. *Australia* Arv.-Touv., of which the type must be *H. australe* Fr. (group xxxiii).

There are 15 new names among the lower ranks:

Sect. *Aurella* includes:

Mollita Arv.-Touv., based on *H. mollitum* Arv.-Touv. (group vii).

Sect. *Pseudocerinthoidea* includes:

Hispida Arv.-Touv., based on *H. hispidum* Fr. (group xvii).

Heterodonta Arv.-Touv., based on *H. heterodon* Arv.-Touv. (group vii).

Sect. *Andryaloidea* includes:

Lanata Arv.-Touv., based on *H. lanatum* Vill. (group xii).

Thapsoidea Arv.-Touv., based on *H. thapsoides* Arv.-Touv. (group xiii).

Lanatella Arv.-Touv., based on *H. lanatellum* Arv.-Touv. (group xi).

Pseudolanata Arv.-Touv., based on *H. pseudolanatum* Arv.-Touv. (group xiii).

Sect. *Pulmonarioidea* includes:

Aurelloidea Arv.-Touv., based on a rather heterogeneous group of taxa mostly in Sell & West's groups i–iii. *H. cirritum* Arv.-Touv. (group i) is here chosen as lectotype as it agrees well with the subsectional description (e.g. few, large capitula).

Bifida Arv.-Touv., based on *H. bifidum* Kit. (group i).

Trivialia Arv.-Touv., based on eight species of which *H. murorum* is here selected as type. This name had been used earlier by Arvet-Touvet (1879), but was there a nomen nudum.

Hemipleca Arv.-Touv., based on *H. hemiplecum* Arv.-Touv. (group xxviii).

Sect. *Prenanthoidea* includes:

Lanceolata Arv.-Touv., based on *H. lanceolatum* Vill. (group xxviii).

Sect. *Australia* includes:

Polyphylla Arv.-Touv., based on *H. polyphyllum* (sine auct.), placed in synonymy under *H. myriophyllum* Scheele (group xxxiii).

Sect. *Accipitrina* includes:

Corymbosa Arv.-Touv., based on *H. corymbosum* Fr. (group xxxi).

Eriophora Arv.-Touv., based on *H. eriophorum* St.-Amans (xxxviii).

24. A. Gremli, *Hieracium*, in *Excursionsflora für die Schweiz*, ed. 4, pp. 262–289 (pre-Jul. 1881)

In this fourth edition the nineteen taxa with Arabic numbers are unambiguously termed sections. The two levels of taxa between *Hieracium* subg. *Euhieracium* and the sections are not given ranks. Of the 19 sections the following eight are new combinations: sect. *Villosa* (Griseb.) Gremli, sect. *Glauca* (Griseb.) Gremli, sect. *Lanifera* (Fr.) Gremli, sect. *Alpina* (Griseb.) Gremli, sect. *Rupicola* (Gren.) Gremli, sect. *Aurelloidea* (Arv.-Touv.) Gremli, sect. *Picroidea* (Arv.-Touv.) Gremli and sect. *Umbellata* (Fr.) Gremli.

Three are new names:

SECT. *Barbata* Gremli, based on four species of which *H. glanduliferum* Hoppe (group viii) is here chosen as type, as implied by Burnet & Gremli (1883).

SECT. *Euprenanthoidea* Gremli, an illegitimate name-change for sect. *Prenanthoidea*.

SECT. *Subsabauda* Gremlí, including four species of which *H. vallesiacum* Fr. (group xxxv) is here selected as type since *H. sabaudum* synonyms are cited under it.

25. S. Almquist, *Studier öfver Slägtet Hieracium* (pre-Dec. 1881)

'*Hieracium silvaticum* L. (coll.)' is divided into 12 subspecies, which are grouped into two 'formae': *Subcaesiae* and *Subvulgatae*. These are better treated as taxa of no certain rank, and are hereby typified by *H. silvaticum* sensu Almq. (group i) and *H. pellucidum* Laest. (group i) respectively.

Hieracium vulgatum Fr. is also divided into two 'formae', in this case not divided into subspecies: *Caesiae* and *Vulgatae Genuinae*. The former is apparently based on *H. caesium* (Fr.) Fr. (group ii) and relatives; the latter contains *H. vulgatum* Fr. and corresponds with Grisebach's (1852) taxon *Vulgata*.

26. J.M.C. Arvet-Touvet, *Spicilegium Rariorum vel Novarum Hieraciorum praecipue Americanorum et Europaeorum* (late 1881)

This largely utilizes the hierarchy of his 1880 work, but it describes only rare or new species so several taxa are omitted. Moreover, the genus *Hieracium* is interpreted in a wider sense (to include *Pilosella*, *Stenotheca* and *Mandonia*), and the main subdivisions are designated ambiguously, e.g. 'Sect. IV – Subgen. *Archieracium*', so that true sections cannot be identified. Taxa below that rank are placed at two levels coinciding with the sections and subsections of the 1880 work. No new names are coined. However, in *Suppléments 1 & 2* (1886) the main taxa (*Archieracium* etc.) are unequivocally termed subgenera, those in the second rank (≡ section in the 1880 work) are termed sections, and those in the third rank are termed *Grex*. Nine new names are included but all are *nomina nuda*; this omission is partially rectified later (Arvet-Touvet 1888). The nine names are: *Alata*, *Bracteolata*, *Cerinthea*, *Cotoneifolia*, *Eriocinthea*, *Hispanica*, *Ochroleuca*, *Prenanthea* and *Rupigena*.

27. A. Gremlí *Hieracium*, in *Excursionsflora für die Schweiz*, ed. 5, pp. 265–294 (1885)

Although the classification in Edition 5 resembles that in Edition 4, the ranks below subgenus are not termed sections, and between the two editions Gremlí (in Burnet & Gremlí, *Catalogue Raisonné des Hieracium des Alpes Maritimes* (1883)) had subscribed to a different system of classification. Therefore I do not accept the taxa in Edition 5 as sections; if they were so accepted they would include the earliest combinations at sectional level for *Cerinthella*, *Lanatella* and *Lanata*. Two new names are introduced:

Atrata Gremlí, based on *H. atratum* Fr. (group xvii).

Subprenantheoidea Gremlí, based on three species of which *H. macilentum* Fr. (group xxx) is selected here as type as it fits the description best.

28. J.M.C. Arvet-Touvet, *Les Hieracium des Alpes Françaises* (1888)

Subgenus *Archieracium* is divided into eleven sections, of which one is new: sect. *Heterodonta* (Arv.-Touv.) Arv.-Touv.

Below this level about 40 'groupes' are recognized, some of which are described, as well as a few 'subgroupes'; 17 of these are new names but also included are the nine undescribed taxa named earlier by Arvet-Touvet (1881).

Of these 26 names, six were taken up by later authors: *Aurellina*, *Balsamea*, *Cerinthea* and *Viscosa* by Rouy (1905); *Bracteolata* by Zahn (1922); and *Eualpina* by Williams (1902). Three of these are *nomina nuda* in Arvet-Touvet (1881 & 1888); the other three are typified here:

Aurellina is based on six species of which *H. cirritum* Arv.-Touv. (group xi) is chosen as type as it is the most widespread.

Balsamea is based on four species of which *H. amplexicaule* L. (group xx) is chosen as type as it is the most widespread.

Viscosa is based on *H. viscosum* Arv.-Touv. (group xxii).

29. C.W. Nägeli & A. Peter, *Die Hieracium Mittel-Europas* 2 (1886–1889)

The 'Archieracien' are divided into four taxa of unknown rank:

Glaucina Nägeli & Peter, based on *H. glaucum* All. (group xxiv).

Villosina Nägeli & Peter, based on *H. villosum* Jacq. (group vii).

Glandulifera Nägeli & Peter, based on *H. glanduliferum* Hoppe (group viii).

Tomentosa Nägeli & Peter, based on *H. tomentosum* All. (group xii).

30. J. Freyn, *Hieracium* L., in J. Velenovsky, *Flora Bulgarica*, pp. 336–354 (1891)

A full classification is provided, but no sections are specified. Two names appear to be new:

Glauciformia Freyn, based on *H. stuppeum* (Rchb.) Rchb. f., nom. illegit. (= *H. heterogynum* (Froel.) Gutermann) (group xxvi).

Crinita Velen., based on *H. crinitum* Sibth. & Sm. (group xxxiii). The name was attributed to 'A-T', but I have failed to find mention of it in any of Arvet-Touvet's publications.

31. G.A.H. Dahlstedt, Bidrig till Sydöstra Sveriges *Hieracium*-Flora, II & III. *Archieracia*, in *Kongl. Svenska Vetenskapsakademiens Handlingar* 25(3): 1–201 (1893) & 26(3): 1–266 (1894)

The *Archieracia* are divided into four sections:

SECT. *Vulgata* (Griseb.) Willk. & Lange.

SECT. *Oreadea* (Fr.) Arv.-Touv.

SECT. *Rigida* (Lindeb.) Dahlst., based on *H. rigidum* Hartm. (group xxxvii). Dahlstedt referred SECT. *Rigida* to 'Lbg', but Lindeberg's *Rigida* (in Blytt, Norges Fl. 2: 662 (1874) and in Hartm., Handb. Skand. Fl., ed. 11, p. 48 (1879)) is a taxon of unspecified rank, based on six species including *H. rigidum* Hartm.

SECT. *Foliosa* (Fr.) Arv.-Touv. Dahlstedt also referred this section to 'Lbg', but again the rank was unspecified by Lindeberg.

Sect. *Vulgata* is divided into four subsections:

SUBSECT. *Subcaesia* (Almq.) Dahlst.

SUBSECT. *Subvulgata* (Almq.) Dahlst.

SUBSECT. *Caesia* (Almq.) Dahlst.

SUBSECT. *Vulgata* (Griseb.) Dahlst.

32. A. Peter, *Hieracium* L., in A. Engler & K. Prantl, *Die Natürlichen Pflanzenfamilien* IV(5): 375–387 (May 1894)

Subgenus *Archieracium* is divided into two major groups (*Aurella* and *Accipitrina*) which are divided into 13 and 10 ‘Artengruppe’ respectively. These 23 groups correspond to the sections of several previous workers, but are not described nor can be considered as such. Two of them are new:

Pleiophylla Peter, based on *H. pleiophyllum* Schur (group ii).

Picta Peter, based on *H. pictum* Schleich. ex Pers. (group x).

33. K.H. Zahn, *Hieracium*, in W.D.J. Koch, *Synopsis der Deutschen und Schweizer Flora*, ed. 3, 2: 1697–1931 (Aug. 1900–Apr. 1902)

In this, his first major contribution to *Hieracium* classification, Zahn recognized 19 sections (‘Rotte’) in subg. *Euhieracium*, including one new section and three new combinations:

SECT. *Holeleion* Zahn, clearly based on the non-European *H. holelejon* Maxim.

SECT. *Pleiophylla* (Peter) Zahn, comb. nov.

SECT. *Tomentosa* (Nägeli & Peter) Zahn, comb. nov.

SECT. *Lanatella* (Arv.-Touv.) Zahn, comb. nov.

Zahn wrongly attributed the taxon *Holeleion* to Fries (1862: 138), whereas Fries actually placed *H. holelejon* in taxon *Pseudostenotheca* and merely mentioned *Holeleion* under it as one of two ‘stirps’ or ‘races’, based on species names, which in my opinion were not meant as formal taxa. Zahn also mentioned as synonyms under sect. *Holeleion* the names *Cernua* R. Uechtr. and *Oliganthae* A. Kern. Section *Cernua* R. Uechtr. (*Oesterr. Bot. Z.* 25: 215 (1875)) was based primarily on *H. silesiacum* E. Krause (group xxiv). Lindeberg (in Hartm., *Handb. Skand. Fl.*, ed. 11, p. 39 (1879) later used the (unranked) name *Cernua* in a totally different sense, based on *H. alpinum* L. (group xvi). Unranked taxon *Oliganthae* A. Kern. (*Sched. Fl. Exs. Austro-Hung.* 2: 64 (1882)) was erected for *H. grisebachii* A. Kern. (group xxiv), but has not since been taken up.

34. F.N. Williams, A revision of the British *Hieracia*, in *Prodromus Florae Britannicae* 3: 76–184 (Nov. 1902–1903)

The British species of subgenus *Archieracium* are classified into nine sections (none new), three of which are divided into subsections.

Sect. *Alpina* is divided into:

SUBSECT. *Eualpina* F.N. Williams, intended to include the type of the section and hence here typified on *H. alpinum* L. (group xvi); the name had been previously used by Arvet-Touvet (1888) but that was not referred to by Williams.

SUBSECT. *Hyparctica* F.N. Williams, based on *H. hyparcticum* (Almq.) F. Hanb. (group xvii).

Sect. *Vulgata* is divided into 11 subsections, of which nine are new:

SUBSECT. *Eumurorum* F.N. Williams, based on '*H. murorum* Sm.' sub *H. flocculosum* Backh. (group vi).

SUBSECT. *Trichopetala* F.N. Williams, based on three species of which *H. cymbifolium* Purchas (group i) is here selected as type.

SUBSECT. *Pictorum* F.N. Williams, based on *H. pictorum* E. F. Linton (group i).

SUBSECT. *Silvatica* F.N. Williams, based on *H. silvaticum* (group i).

SUBSECT. *Aggregata* F.N. Williams, based on *H. aggregatum* Backh. (group i).

SUBSECT. *Pseudooreadea* F.N. Williams, based on three species of which the one treated most fully, *H. euprepes* F.J. Hanb. (group ii), is here chosen as type.

SUBSECT. *Euvulgata* F.N. Williams, based on *H. vulgatum* Fr. (group ii).

SUBSECT. *Vulgatella* F.N. Williams, based on *H. aphyllopodioides* F.N. Williams (group xxxvii, fide P.D. Sell).

SUBSECT. *Vulgatina* F.N. Williams, based on *H. subramosum* Lönnr. (group ii).

In addition subsect. *Subvulgata* F.N. Williams, based on *H. diaphanum* Fr. (group ii), was used in a different sense from Almquist's (1881) and Dahlstedt's (1893) and must be treated as an illegitimate later homonym.

Sect. *Alpestria* is divided into two subsections:

SUBSECT. *Pachycephala* F.N. Williams, based on two species of which *H. dewarii* Syme (group xxx), the only one now considered British, is here chosen as type.

SUBSECT. *Stenocephala* F.N. Williams, based on three species of which the new species *H. perthense* F.N. Williams (group xxx) is here selected as type.

35. G. Rouy, *Hieracium* L., in G. Rouy & J. Foucaud, *Flore de France* 9: 232–453 (1905)

Subgenus *Archihieracium* is divided into twelve sections, three of which are divided into subsections. One of the sections, *Alpicola* (Gremli) Rouy, based on subg. *Pilosella* taxon *Alpicola* Gremli (ed. 5, 1885), contains the type *H. alpicola* Schleich. ex Gaudin which is now (as by Gremli) considered to belong to *Pilosella*.

Four of the sections are new:

SECT. *Euaurella* Rouy, an illegitimate name based on sect. *Aurella* (Tausch) W.D.J. Koch.

SECT. *Hirsuta* Rouy, based on *H. hirsutum* Gren. (non Bernh. ex Froel.) (group xxxiii). Hence this is not the same as subsect. *Hirsuta* Scheele (1864), and so is illegitimate.

SECT. *Viscosa* (Arv.-Touv.) Rouy, comb. nov.

SECT. *Meridionalia* Rouy, previously published in *Ill. Pl. Eur.* 19:151 (1904), based on *H. insulare* Rouy (group xxxiii).

Sect. *Euaurella* has five subsections:

SUBSECTS *Barbata* (Gremli) Rouy; *Villosa* (Griseb.) Rouy; *Glauca* (Griseb.) Rouy; *Lanifera* (Fr.) Rouy; and *Cerinthea* Rouy. The last name was coined by Arvet-Touvet (1881, 1888) but as a nomen nudum. Rouy based it on *H. cerinthoides* L. (group vi).

Sect. *Pulmonarioidea* has three subsections:

SUBSECTS *Oreadea* (Fr.) Arv.-Touv.; *Aurellinia* (Arv.-Touv.) Rouy (spelled *Aurellina* by Arvet-Touvet); and *Communia* Rouy. The last seems to have been intended as the type of the genus, but not explicitly stated, so is here typified on *H. murorum* (group i).

Sect. *Viscosa* has three subsections:

SUBSECTS *Accipitrinoidea* Rouy, intended as the type subsection, including *H. viscosum* Arv.-Touv. (group xxii), here selected as the type; *Balsamea* (Arv.-Touv.) Rouy, comb. nov.; and *Humilia* Rouy, based on *H. humile* Jacq. (group xix).

36. K.H. Zahn, Beiträge zur Kenntnis der Archieracien Ungarns und der Balkanländer, in *Magyar Botanikai Lapok* 5: 62–94 (1906) (1906a)

19 main groups are recognized, but they are not given a rank. Two names are new: *Pannosa* Zahn, based on *H. pannosum* Boiss. (group xiv).

Naegeliania Zahn, based on *H. naegelianum* Pancic (group xxiv).

37. K.H. Zahn, Die *Hieracia* der Schweiz, in *Neue Denkschriften der Allg. Schweizerischen Gesellschaft für die Gesamten Naturwissenschaften* 40: 161–728 (1906) (1906b)

Hieracium subg. *Euhieracium* is divided into 17 sections, of which one is new: sect. *Lanata* (Arv.-Touv.) Zahn, comb. nov.

38. K.H. Zahn, *Hieracium* subgenus *Euhieracium*, in A. Engler, *Das Pflanzenreich* IV. 280 (Hefte 75–79): 33–1075 (1921–22)

In Zahn's magnum opus 25 sections are recognized; 6 are new:

SECT. *Pannosa* (Zahn) Zahn, comb. nov.

SECT. *Eriophora* (Arv.-Touv.) Zahn, comb. nov.

SECT. *Glauciformia* (Freyn) Zahn, comb. nov.

SECT. *Bracteolata* Zahn, based on *H. bracteolatum* Sibth. & Sm. (group xxxiv). The name *Bracteolata* was published earlier by Arvet-Touvet (1881, 1888) and referred to by Zahn, but both were nomina nuda.

SECT. *Stelligera* Zahn, based on *H. stelligerum* Froel. (group iii).

SECT. *Schmalhauseniana* Zahn, based on *H. schmalhausenianum* Litv. & Zahn (from the Caucasus). This was published earlier by Zahn in *Repertorium Specierum Novarum Regni Vegetabilis* 4: 326 (1907).

39. H.W. Pugsley, A Prodrum of the British *Hieracia*, in *Journal of the Linnean Society, Botany* 54: 1–356 (1948)

Pugsley's monograph of the British *Hieracia* recognizes 13 sections in subg. *Euhieracium*, of which two are new:

SECT. *Subalpina* Pugsley, based on 15 species of which *H. lingulatum* Backh. ex Hook. & Arn. (group xvii) is here selected as type by P.D. Sell (pers. comm.), since it is a well-known species fitting the sectional description well.

SECT. *Suboreadea* Pugsley, based on 14 species of which *H. britannicum* F. Hanb. (group iii) is here selected as type by P.D. Sell (pers. comm.), since it is a well-known species fitting the sectional description well.

In addition, sect. *Vulgata* is divided into six subsections:

SUBSECT. *Bifida* (Arv.-Touv.) Pugsley, based on *H. bifidum* Kit. (group i). Pugsley did not refer to Arvet-Touvet's (1880) group *Bifida*, based on the same type species, and so, unless it is considered to be the same taxon, Pugsley's name would be illegitimate.

SUBSECT. *Stellatifolia* Pugsley, based on two species, of which the commoner, *H. cymbifolium* Purchas (group i) is here selected as type.

SUBSECT. *Glandulosa* Pugsley, based on 21 species, of which *H. pellucidum* Laest. (group i), chosen by Pugsley as a 'grex', is here selected as type. This name is rendered invalid by the earlier subsection. *Euglandulosa* Arv.-Touv. (1873), with a different type.

SUBSECT. *Sagittata* Pugsley, based on *H. sagittatum* (Lindeb.) Norrl., non Hoffmanns. & Link (= *H. oistophyllum* Pugsley) (group i)

SUBSECT. *Caesia* (Almq.) Dahlst.

SUBSECT. *Euvulgata* F.N. Williams.

Five of the above subsections, plus nine of the other sections, are divided into series; there are 41 of these in total, all new names but all nomina nuda (English descriptions only) unless the references such as 'Grex *H. nigrescens* Willd.' under series *Nigrescentes* can be taken as referring to descriptions.

40. A.R. Clapham, *Hieracium* L., in A.R. Clapham, T.G. Tutin & E.F. Warburg, *Flora of the British Isles*, pp. 1132–1165 (1952)

Clapham followed the classification of Pugsley (1948) (without the series), but did not recognize sect. *Suboreadea* (merged with *Oreadea*) and raised five of Pugsley's six subsections of sect. *Vulgata* to sections:

SECT. *Euvulgata* (F.N. Williams) A.R. Clapham.

SECT. *Caesia* (Almq.) A.R. Clapham.

SECT. *Sagittata* (Pugsley) A.R. Clapham.

SECT. *Glandulosa* (Pugsley) A.R. Clapham.

SECT. *Bifida* (Arv.-Touv.) A.R. Clapham.

Pugsley's sixth subsection, *Stellatifolia*, was included in sect. *Bifida*.

41. A.Y. Juxip, *Hieracium*, in V.L. Komarov, *Flora SSSR* 30: 1–732 (1960)

The 451 species of subg. *Euhieracium* are divided into 14 sections, none of which is new.

Sections *Sabauda*, *Umbellata*, *Prenanthoidea*, *Alpina* and *Vulgata* are divided into three, two, four, four and eight subsections respectively, but none of these is given a Latin description so all are invalid names; most of the 21 names are new and do not have an obvious type.

Most of the subsections and undivided sections are organized into what translates into 'Circles', of which there are 127. These are clearly the equivalent of Zahn's

'species collectivae' (or more closely of Gustafsson's 'circle species') but they are given unique Latin epithets like the sections and subsections. None, however, is given a description, but a few carry references such as 'Grex *H. subcaesium* (Fr.) Zahn'.

42. P.D. Sell & C. West, *Hieracium*, in P.H. Davis, *Flora of Turkey* 5: 696–746 (1975)

Pilosella is recognized as a separate genus. The 99 species of *Hieracium* are divided into 14 series, which are the equivalent of sections of most other modern works and of the informal groups of Sell & West (1976).

Twelve of the series are recombinations of earlier sections or other infrageneric taxa, and two are new:

SER. *Pseudopannosa* P.D. Sell & C. West, based on twelve species endemic to Turkey.

SER. *Sparsa* P.D. Sell & C. West, based on *H. sparsum* Friv. (group xxv).

However, no Latin descriptions or basionyms are given so all 14 series are invalid.

EUROPEAN SECTIONS OF *HIERACIUM* SUBGENUS *HIERACIUM*

The following is a list of the 38 unnamed groups recognized by Sell & West (1976) in subg. *Hieracium*, together with their correct sectional names and synonymy so far as I have been able to ascertain. All taxa that have been published at a named rank have been included, plus those rankless taxa (designated in the following list as 'taxon') that are basionyms of taxa at a named rank, with the following exceptions: 41 series in Pugsley; and 21 subsections and 127 'circles' in Juxip. Also omitted are 21 rankless taxa in the foregoing lists that have not been taken up by subsequent authors.

In addition there are three Asian taxa that have been, or should be, recognized at the same level:

SECT. *Schmalhauseniana* Zahn (1907), from the Caucasus;

SECT. *Hololeion* Zahn (1902), from Far-east Russia; and

SER. *Pseudopannosa* P.D. Sell & C. West (1975), nom. nud., from Turkey.

The second of these, however, might not belong to the genus *Hieracium* (P.D. Sell, oral comm.).

Whereas names have been mostly quoted verbatim in the previous part of this paper, they have been changed to their correct endings in the following list.

Group i – sect. *Hieracium*

Lectotype species (of genus): *H. murorum* L., selected by N.L. Britton & A. Brown, Ill. Fl. N. U. S., ed. 2, 3: 328 (1913)

Syn.: sect. *Hieraciotypus* Dumort. (1827), nom. inval.

sect. *Pulmonaria* Monnier (1829)

ser. *Pulmonaria* (Monnier) Fr. (1847)

taxon *Aurelloidea* Arv.-Touv. (1880)
 sect. *Aurelloidea* (Arv.-Touv.) Gremlí (1881)
 taxon *Bifida* Arv.-Touv. (1880)
 subsect. *Bifida* (Arv.-Touv.) Pugsley (1948)
 sect. *Bifida* (Arv.-Touv.) A.R. Clapham (1952)
 ser. *Bifida* (Arv.-Touv.) P.D. Sell & C. West (1975), comb. inval.
 taxon *Subvulgata* Almq. (1881)
 subsect. *Subvulgata* (Almq.) Dahlst. (1893), non F.N. Williams (1902)
 taxon *Subcaesia* Almq. (1881)
 subsect. *Subcaesia* (Almq.) Dahlst. (1893)
 subsect. *Aggregata* F.N. Williams (1902)
 subsect. *Pictorum* F.N. Williams (1902)
 subsect. *Silvatica* F.N. Williams (1902)
 subsect. *Trichopetala* F.N. Williams (1902)
 subsect. *Communia* Rouy (1905)
 subsect. *Glandulosa* Pugsley (1948), nom. inval., non subsect. *Euglandulosa*
 Arv.-Touv. (1873)
 sect. *Glandulosa* (Pugsley) A.R. Clapham, nom. inval. (1952)
 subsect. *Sagittata* Pugsley (1948)
 sect. *Sagittata* (Pugsley) A.R. Clapham (1952)
 subsect. *Stellatifolia* Pugsley (1948)

Group ii – sect. *Vulgata* (Griseb.) Willk. & Lange, Prodr. Fl. Hispan. 2: 266 (1870)

Basionym: taxon *Vulgata* Griseb., Comm. Hierac. Eur., p. 36 (1852)

Type species (obligatory): *H. vulgatum* Fr.

Syn.: subsect. *Vulgata* (Griseb.) Dahlst. (1894)

ser. *Vulgata* (Griseb.) P.D. Sell & C. West (1975), comb. inval.

taxon *Pleiophylla* Peter (1894)

sect. *Pleiophylla* (Peter) Zahn (1900)

taxon *Caesia* Almq. (1881)

subsect. *Caesia* (Almq.) Dahlst. (1894)

sect. *Caesia* (Almq.) A.R. Clapham (1952)

subsect. *Euvulgata* F.N. Williams (1902), nom. illegit.

sect. *Euvulgata* (F.N. Williams) A.R. Clapham (1952), nom. illegit.

subsect. *Pseudooreadea* F.N. Williams (1902)

subsect. *Subvulgata* F.N. Williams (1902), nom. illegit., non (Almq.) Dahlst. (1893)

subsect. *Vulgatina* F.N. Williams (1902)

Group iii – sect. *Stelligera* Zahn, in A. Engler, Pflanzenr. IV. 280 (Heft 75): 281 (1921)

Type species (obligatory): *H. stelligerum* Froel.

Syn.: taxon *Pallida* Backh. (1856)
 ser. *Pallida* (Backh.) P.D. Sell & C. West (1975), comb. inval.
 sect. *Suboreadea* Pugsley (1948)

Group iv – sect. *Oreadea* (Fr.) Arv.-Touv., Essai Pl. Dauphiné, p. 47 (1871)
 Basionym: taxon *Oreadea* Fr., Epic. Gen. Hierac., p. 7, 82 (1862)
 Type species (obligatory): *H. oreades* Fr.
 Syn.: subsect. *Oreadea* (Fr.) Arv.-Touv. (1879)

Group v – sect. *Lanifera* (Fr.) Gremlin, Excursionsfl. Schweiz, ed. 4, p. 270 (1881)
 Basionym: taxon *Lanifera* Fr., Epic. Gen. Hierac., p. 6, 50 (1862)
 Type species (obligatory): *H. laniferum* Cav.
 Syn.: subsect. *Oleosa* Arv.-Touv. (1879)
 subsect. *Lanifera* (Fr.) Rouy (1905)
 subsect. *Bellidifolia* Scheele (1864)

Group vi – sect. *Cerinthoidea* Monnier, Ess. Monog. Hieracium, p. 48 (1829)
 Type species (obligatory): *H. cerinthoides* L.
 Syn.: subsect. *Cerinthoidea* (Monnier) Arv.-Touv. (1873)
 sect. *Oxylepida* Froel. (1839), nom. illegit.
 subsect. *Cerinthella* Scheele (1864)
 subsect. *Olivacea* Scheele (1864)
 subsect. *Eumurorum* F.N. Williams (1902)
 subsect. *Cerinthea* Rouy (1905)

Group vii – sect. *Villosa* (Griseb.) Gremlin, Excursionsfl. Schweiz, ed. 4, p. 269 (1881)
 Basionym: taxon *Villosa* Griseb., Comm. Hierac. Eur., p. 65 (1852)
 Type species (obligatory): *H. villosum* Jacq.
 Syn.: subsect. *Villosa* (Griseb.) Rouy (1905)
 taxon *Heterodonta* Arv.-Touv. (1880)
 sect. *Heterodonta* (Arv.-Touv.) Arv.-Touv. (1888)

Group viii – sect. *Barbata* Gremlin, Excursionsfl. Schweiz, ed. 4, p. 270 (1881)
 Lectotype species: *H. glanduliferum* Hoppe, selected here.

Group ix – sect. *Mixta* Stace & P.D. Sell, **sectio nova**

Rhizoma plerumque pilis longis. Planta ubique pilis simplicibus eglandulosis longis et interdum pilis subplumosis. Folia basalia numerosa; folia caulina 1–4, ± amplexicaulia. Capitula 1–2, longipedunculata. Ligulae ad apicem pilis glandulosis vel eglandulosis simplicibus brevibus vestitae. Stigmata lutea. Achenia 3.5–4mm, fusca. Alveoli margine dentati sparsim ciliati.

Holotypus: *H. mixtum* Froel.

Group x – sect. *Picta* (Peter) Stace, comb. et stat. nov.

Basionym: taxon *Picta* Peter, in A. Engler & K. Prantl, Nat. Pflanzenfamilien IV(5): 377 (1894)

Type species (obligatory): *H. pictum* Schleich.

Group xi – sect. *Lanatella* (Arv.-Touv.) Zahn, in W.D.J. Koch, Syn. Deut. Schweiz. Fl., ed. 3, 2: 1828 (1900)

Basionym: taxon *Lanatella* Arv.-Touv., Bull. Soc. Dauphin. Éch. Pl. 1880: 286 (1880)

Type species (obligatory): *H. lanatellum* Arv.-Touv.

Syn.: taxon *Aurellinia* Arv.-Touv. (1888)

subsect. *Aurellinia* (Arv.-Touv.) Rouy (1905)

Group xii – sect. *Andryaloidea* Monnier, Ess. Monog. Hieracium, p. 51 (1829),

Type species (obligatory): *H. andryaloides* Vill.

Syn.: subsect. *Andryaloidea* (Monnier) Arv.-Touv. (1873)

taxon *Lanata* Arv.-Touv. (1880)

sect. *Lanata* (Arv.-Touv.) Zahn (1906b)

taxon *TomENTOSA* Nägeli & Peter (1889)

sect. *TomENTOSA* (Nägeli & Peter) Zahn (1900)

Group xiii – sect. *Thapsoidea* (Arv.-Touv.) Stace, comb. et stat. nov.

Basionym: taxon *Thapsoidea* Arv.-Touv., Bull. Soc. Dauphin. Éch. Pl. 1880: 285 (1880)

Type species (obligatory): *H. thapsoides* Arv.-Touv.

Group xiv – sect. *Pannosa* (Zahn) Zahn, in A. Engler, Pflanzenr. IV. 280 (Heft 76): 560 (1921)

Basionym: taxon *Pannosa* Zahn, Mag. Bot. Lapok 5: 69 (1906a)

Type species (obligatory): *H. pannosum* Boiss.

Syn.: ser. *Pannosa* (Zahn) P.D. Sell & C. West (1975), comb. inval.

Group xv – sect. *Pilosissima* Stace & P.D. Sell, **sectio nova**

Folia pauca vel numerosa; folia basalia per anthesin praesentia vel absentia; folia caulina interdum amplexicaulia, pilis simplicibus eglandulosis ± plumosis. Involucra magna, pilis simplicibus eglandulosis ± plumosis et saepe pilis glandulosis vestita. Stigmata lutea vel discoloria. Achenia atrobrunnea vel brunnea. Alveoli margine breviter dentati.

Holotypus: *H. pilosissimum* Friv.

Group xvi – sect. *Alpina* (Griseb.) Grelli, Excursionsfl. Schweiz, ed. 4, p. 269 (1881)

Basionym: taxon *Alpina* Griseb., Comm. Hierac. Eur., p. 28 (1852)

Type species (obligatory): *H. alpinum* L.

Syn.: subsect. *Eualpina* F.N. Williams (1902), nom. illegit.

Group xvii – sect. *Subalpina* Pugsley, J. Linn. Soc., Bot. 54: 53 (1948)Lectotype species: *H. lingulatum* Backh. ex Hook. & Arn., selected here by P.D. SellSyn.: subsect. *Hyparctica* F.N. Williams (1902)**Group xviii – sect. *Pulmonarioidea*** W.D.J. Koch, Syn Fl. Germ. Helv., p. 454 (1837)Type species (obligatory): *H. pulmonarioides* J. Presl (= *H. sudeticum* Sternb.), non Vill.Syn.: subsect. *Pulmonarioidea* (W.D.J. Koch) Arv.-Touv. (1873)subsect. *Eupulmonarioidea* Arv.-Touv. (1879), nom. illegit.sect. *Pseudocerinthoidea* W.D.J. Koch (1844), nom. illegit.**Group xix – sect. *Glutinosa*** W.D.J. Koch, Syn Fl. Germ. Helv., p. 454 (1837)Lectotype species: *H. jacquini* Vill. (= *H. humile* Jacq.), selected here.Syn.: subsect. *Humilia* Rouy (1905)**Group xx – sect. *Amplexicaulia*** (Griseb.) Scheele, Linnaea 32: 652 (1864)Basionym: taxon *Amplexicaulia* Griseb., Comm. Hierac. Eur., p. 23 (1852)Type species (obligatory): *H. amplexicaule* L.Syn.: subsect. *Euglandulosa* Arv.-Touv. (1873), non subsect. *Glandulosa* Pugsley (1948)taxon *Balsamea* Arv.-Touv. (1888)subsect. *Balsamea* (Arv.-Touv.) Rouy (1905)**Group xxi – sect. *Rupicola*** (Gren.) Greml, Excursionsfl. Schweiz, ed. 4, p. 269 (1881)Basionym: taxon *Rupicola* Gren., in J.C.M. Grenier & D.A. Godron, Fl. France 2: 376 (1850)Type species (obligatory): *H. rupicola* Jord.**Group xxii – sect. *Picroidea*** (Arv.-Touv.) Greml, Excursionsfl. Schweiz, ed. 4, p. 270 (1881)Basionym: subsect. *Picroidea* Arv.-Touv., Addit. Monogr. Pilosella & Hieracium, p. 17 (1879)Holotype species: *H. lactucifolium* Arv.-Touv.Syn.: taxon *Viscosa* Arv.-Touv. (1888)sect. *Viscosa* (Arv.-Touv.) Rouy (1905)subsect. *Accipitrinoidea* Rouy (1905)**Group xxiii – sect. *Intybacea*** W.D.J. Koch, Syn. Fl. Germ. Helv., ed. 2, p. 527 (1844)Type species (obligatory): *H. intybaceum* All.**Group xxiv – sect. *Drepanoidea*** Monnier, Ess. Monog. Hieracium, p. 13 (1829)Lectotype species: *H. porrifolium* L., selected here.

Syn.: taxon *Aurella* Tausch (1828)
 sect. *Aurella* (Tausch) W.D.J. Koch (1837)
 ser. *Aurella* (Tausch) Fr. (1847)
 subsect. *Aurella* (Tausch) Arv.-Touv. (1873)
 sect. *Phyllopoda* Godet (1852)
 taxon *Glauca* Griseb. (1852)
 sect. *Glauca* (Griseb.) Gremlı (1881)
 subsect. *Glauca* (Griseb.) Rouy (1905)
 ser. *Glauca* (Griseb.) P.D. Sell & C. West (1975), comb. inval.
 sect. *Cernua* R. Uechtr. (1875)
 sect. *Euaurella* Rouy (1905), nom. illegit.

Group xxv – sect. *Pseudostenotheca* (Fr.) Juxip, in Kom., Fl. URSS 30: 13 (1960)
 Basionym: taxon *Pseudostenotheca* Fr., Epic. Gen. Hierac., p. 7, 138 (1862)
 Lectotype species: *H. sparsiflorum* Friv. ex Fr., nom. illegit. (= *H. sparsum* Friv.),
 selected here.
 Syn.: ser. *Sparsa* P.D. Sell & C. West (1975), nom. nud.

Group xxvi – sect. *Glauciformia* (Freyn) Zahn, in A. Engler, Pflanzenr. IV. 280 (Heft
 79): 962 (1922)
 Basionym: taxon *Glauciformia* Freyn, in J. Velenovsky, Fl. Bulg., p. 347 (1891)
 Holotype species: *H. stuppeum* (Rchb.) Rchb. f., nom. illegit. (= *H. heterogynum*
 (Froel.) Gutermann)

Group xxvii – sect. *Umbrosa* Stace & P.D. Sell, **sectio nova**
 Folia basalia per anthesin plerumque praesentia; folia caulina 2–12(–25), superiora
 saltem ± amplexicaulia, saepe aliquantum panduriformia. Inflorescentia magna,
 plerumque capitulis numerosis. Involucri squamae linearilanceolatae obtusae vel
 acutae, pilis glandulosis numerosis et pilis simplicibus eglandulosis paucis vel nullis
 vestitae. Ligulae glabrae vel ad apicem pilis eglandulosis simplicibus paucis vestitae.
 Stigmata plerumque discoloria. Achenia atrobrunnea. Alveoli margine dentati.
 Holotypus: *H. umbrosum* Jord.

Group xxviii – sect. *Prenanthoidea* W.D.J. Koch, Syn. Fl. Germ. Helv., ed. 2,
 p. 527 (1844)
 Type species (obligatory): *H. prenanthoides* Vill.
 Syn.: subsect. *Prenanthoidea* (W.D.J. Koch) Arv.-Touv. (1873)
 ser. *Prenanthoidea* (W.D.J. Koch) P.D. Sell & C. West (1975), comb. inval.
 sect. *Euprenanthoidea* Gremlı (1881), nom. illegit.

Group xxix – sect. *Cydoniifolia* (Arv.-Touv.) Stace, comb. et stat. nov.
 Basionym: subsect. *Cydoniifolia* Arv.-Touv., Monogr. Pilosella & Hieracium, p. 41
 (1873)
 Type species (obligatory): *H. cydoniifolium* Vill.

Group xxx – sect. *Alpestria* (Fr.) Arv.-Touv., Suppl. Monogr. Pilosella & Hieracium, p. 23 (1876)

Basionym: taxon *Alpestria* Fr., Epic. Gen. Hierac., p. 7, 102 (1862)

Lectotype species: *H. dovrense* Fr., selected here

Syn.: subsect. *Alpestria* (Fr.) Arv.-Touv. (1873)

sect. *Subaphyllopoda* Arv.-Touv. (1873)

subsect. *Stenocephala* F.N. Williams (1902)

subsect. *Pachycephala* F.N. Williams (1902)

Group xxxi – sect. *Foliosa* (Fr.) Arv.-Touv., Suppl. Monogr. Pilosella & Hieracium, p. 30 (1876)

Basionym: taxon *Foliosa* Fr., Epic. Gen. Hierac., p. 7, 123 (1862)

Type species (obligatory): *H. foliosum* Waldst. & Kit.

Syn.: ser. *Foliosa* (Fr.) P.D. Sell & C. West (1975), comb. inval.

Group xxxii – sect. *Lucida* Stace & P.D. Sell, **sectio nova**

Folia coriacea, omnia caulina, 12–20, inferna magna aggregata, glabra vel ad margines pilis glandulosis paucis vestita. Inflorescentia compacta angusta, capitulis 3–40. Involucra 11–15mm; squamae late linearilanceolatae obtusae, pilis glandulosis flavidis paucis vel densis vestitae. Ligulae glabrae. Stigmata discoloria. Achenia brunnea. Alveoli margine dentati.

Holotypus: *H. lucidum* Guss.

Group xxxiii – sect. *Italica* (Fr.) Arv.-Touv., Suppl. Monogr. Pilosella & Hieracium, p. 27 (1876)

Basionym: taxon *Italica* Fr., Epic. Gen. Hierac., p. 7, 107 (1862)

Type species (obligatory): *H. italicum* Fr.

Syn.: ser. *Italica* (Fr.) P.D. Sell & C. West (1975), comb. inval.

subsect. *Composita* Scheele (1864)

subsect. *Pyrenaica* Scheele (1864)

sect. *Australia* Arv.-Touv. (1880)

sect. *Meridionalia* Rouy (1904)

sect. *Hirsuta* Rouy (1905), nom. illegit., non subsect. *Hirsuta* Scheele (1864)

Group xxxiv – sect. *Bracteolata* Zahn, in A. Engler, Pflanzenr. IV. 280 (Heft 79): 1010 (1922)

Type species (obligatory): *H. bracteolatum* Sibth. & Sm.

Group xxxv – sect. *Sabauda* (Fr.) Arv.-Touv., Suppl. Monogr. Pilosella & Hieracium, p. 29 (1876)

Basionym: taxon *Sabauda* Fr., Epic. Gen. Hierac., p. 7, 127 (1862)

Type species (obligatory): *H. sabaudum* L.

Syn.: ser. *Sabauda* (Fr.) P.D. Sell & C. West (1975), comb. inval.
 subsect. *Hirsuta* Scheele (1864), non sect. *Hirsuta* Rouy (1905)
 sect. *Subsabauda* Gremlı (1881)

Group xxxvi – sect. *Hieracioides* Dumort., Fl. Belg., p. 62 (1827)

Lectotype species: *H. umbellatum* L., selected here

Syn.: *Hieracioides* Moench (1794), nom. illegit., non Fabr. (1759)
 sect. *Aphyllopoda* Froel. ex W.D.J. Koch (1837)
 subsect. *Leiocephala* Froel. (1838)
 sect. *Accipitrina* W.D.J. Koch (1844)
 ser. *Accipitrina* (W.D.J. Koch) Fr. (1847)
 subsect. *Accipitrina* (W.D.J. Koch) Arv.-Touv. (1873)
 taxon *Umbellata* Fr. (1862)
 sect. *Umbellata* (Fr.) Gremlı (1881)
 ser. *Umbellata* (Fr.) P.D. Sell & C. West (1975), comb. inval.
 subsect. *Euaccipitrina* Arv.-Touv. (1879)

Group xxxvii – sect. *Tridentata* (Fr.) Arv.-Touv., Suppl. Monogr. Pilosella & Hieracium, p. 28 (1876)

Basionym: taxon *Tridentata* Fr., Epic. Gen. Hierac., p. 7, 113 (1862)

Type species (obligatory): *H. tridentatum* Fr.

Syn.: ser. *Tridentata* (Fr.) P.D. Sell & C. West (1975), comb. inval.
 sect. *Rigida* (Lindeb.) Dahlst. (1894)
 subsect. *Vulgatella* F.N. Williams (1902)

Group xxxviii – sect. *Eriophora* (Arv.-Touv.) Zahn, in A. Engler, Pflanzenr. IV. 280 (Heft 79): 940 (1922)

Basionym: taxon *Eriophora* Arv.-Touv., Bull. Soc. Dauphin. Éch. Pl. 1880: 292 (1880)

Type species (obligatory): *H. eriophorum* St.-Amans

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REFERENCES

- DUMORTIER, B. C. J. (1827). *Florula Belgica*. Tournay: J. Casterman.
 EDEES, E. S. & NEWTON, A. (1988). *Brambles of the British Isles*. London: The Ray Society.
 ERICSSON, S. (1992). The microspecies of the *Ranunculus auricomus* complex treated at the species level. *Annales Botanici Fennici* 29: 123–158.

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- GUSTAFSSON, A. (1943). The genesis of the European blackberry flora. *Acta Universitatis Lundensis* 39 (6): 1–200.
- MARKLUND, G. (1961). Der *Ranunculus auricomus*-Komplex in Finnland I. *Societas pro Fauna et Flora Fennica. Flora Fennica* 3.
- SELL, P.D. & WEST, C. (1967). *Pilosella* Hill. In: SELL, P.D. Taxonomic and nomenclatural notes on the British flora. *Watsonia* 6: 313–314.
- SELL, P.D. & WEST, C. (1975). *Hieracium* L. In: DAVIS, P. H. (ed.) *Flora of Turkey* 5: 696–746. Edinburgh: Edinburgh University Press.
- SELL, P.D. & WEST, C. (1976). *Hieracium* L. In: TUTIN, T. G., HEYWOOD, V. H., BURGESS, N. A., MOORE, D. M., VALENTINE, D. H., WALTERS, S. M. & WEBB, D. A. (eds) *Flora Europaea* 4: 358–410. Cambridge: Cambridge University Press.
- WEBER, H. E. (1995). *Rubus*. In: CONERT, H. J., JÄGER, E. J., KADEREIT, J. W., SCHULTZ-MOTEL, W., WAGENITZ, G. & WEBER, H. E. (eds) *Gustav Hegi Illustrierte Flora von Mitteleuropa*, ed. 3, IV (2A): 284–595. Berlin: Blackwell Wissenschafts-Verlag.
- ZAHN, K. H. (1921–1923). Compositae – *Hieracium*. In: ENGLER, A. *Das Pflanzenreich* IV. 280 (Hefte 75–79, 82): 1–1705. Berlin: Engelmann.

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